VERITEK

Electricity Industry Participation Code Audit Report

For

Trustpower Limited

Kawakawa Community Lighting Distributed Unmetered Load

Prepared by Rebecca Elliot – Veritek Ltd

Date of Audit: 16/02/18

Date Audit Report Complete: 7/03/18

Executive Summary

This audit of the Kawakawa Community Lighting DUML database and processes was conducted at the request of Trustpower, in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied.

The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1, which became effective on 1 June 2017.

The database is held by Trustpower in the form of a spreadsheet with updates provided by the Kawakawa Business Association when changes are made.

The audit found five non-compliances and makes no recommendations.

These relate to a small error in the calculation of the daily kW figure, a small discrepancy in the gear wattage for each of the permanent load items and three festive lights which are not recorded in the database.

The future risk rating of eight indicates that the next audit be completed in 12 months. I have considered this result in conjunction with Trustpower's responses and my recommendation for the next audit date is 18 months.

The matters raised are detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	Clause 11.1 of schedule 15.3	Rounded daily kW figure is resulting in an estimated over submission of 1.33%. All 22 items of permanent load have the incorrect ballast applied indicating under submission of 111.05 kWh per annum. Three 6 watt LED festive lights not recorded in the database and "on" period not tracked.	Moderate	Low	2	Identified
All load recorded in database	2.5	Clause 11(2A) of Schedule 15.3	Festive lights not recorded in the database.	Moderate	Low	2	Identified
Tracking of Load Changes	2.6	Clause 11(3) of Schedule 15.3	Tracking of load change not carried out for three 6 watt LED festive lights.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Database Accuracy	3.1	Clause 15.2 & 15.37(b)	All 22 items of permanent load have the incorrect ballast applied indicating under submission of 111.05 kWh per annum. Three 6 watt LED festive lights not recorded in the database.	Moderate	Low	2	Identified
Volume Information Accuracy	3.2	Clause 15.2 & 15.37(c)	Rounded daily kW figure is resulting in an estimated over submission of 1.33%. All 22 items of permanent load have the incorrect ballast applied indicating under submission of 111.05 kWh per annum. Three 6 watt LED festive lights not recorded in the database and on period not tracked	Moderate	Low	2	Identified
					Future Risk Rating	10	
					Indicative Audit Frequency	12 months	

Future risk rating	0	1-4	5-8	9-15	16-18	19+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

Table of Recommendations

Subject	Section	Recommendation	Description
		Nil	

Persons Involved in This Audit:

Auditor:

Name	Company	Role
Rebecca Elliot	Veritek Limited	Lead Auditor
Brett Piskulic	Veritek Limited	Supporting Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Alan Miller	Corporate Account Manager	Trustpower
Richard Dooley		Kawakawa Business Association

Contents

1. Administrative

1.1 List of ICPs

The following ICP is relevant to the scope of this audit:

ICP	Description	NSP	No. of items of load
0000911250TE0FB	KAWAKAWA COMMUNITY LIGHTING x 18 RECORDS	KOE1101	22
		TOTAL items of load	22

1.2 Exemptions from Obligations to Comply with Code (Section 11 of Electricity Industry Act 2010)

Section 11 of the Electricity Industry Act provides for the Electricity Authority to exempt any participant from compliance with all or any of the clauses.

Trustpower confirms there are no exemptions in place relevant to the scope of this audit:

1.3 Supplier List

Kawakawa Business Association is considered an agent, as they will inform Trustpower of changes to the lighting in order for Trustpower to update the database. Local electricians are contracted for any maintenance work in Kawakawa. There is no contract in place and maintenance work is only carried out when requested by Kawakawa Business Association.
Trustpower clearly understands that the use of agents does not release them from their compliance obligations.

1.4 Hardware and Software

The streetlight data is held in an excel spreadsheet. These are backed up in accordance with standard industry procedures. Access to the spreadsheets is restricted by way of user log into the computer drive.

1.5 Breaches or Breach Allegations

There are no breach allegations relevant to the scope of this audit.

1.6 Distributed Unmetered Load Audits (Clauses 16A.26 & 17.295F)

Retailers must ensure that DUML database audits are completed:
1. by 1 June 2018 (for DUML that existed prior to 1 June 2017)
2. within three months of submission to the reconciliation manager (for new DUML)
3. within the timeframe specified by the Authority for DUML that has been audited since 1 June 2017.

Audit Observation
Trustpower has requested Veritek to undertake this lighting audit.

Audit Commentary
This audit report confirms that the requirement to conduct an audit has been met for this database within the required timeframe.

Audit outcome
Compliant

1.7 Separate Distributed Unmetered Load Audit (Clause 16A.8(4))

Retailers must ensure that DUML audits are reported in a separate audit report.

Audit Observation
Trustpower has requested Veritek to undertake this lighting audit.

Audit Commentary
The audit report for this DUML database is separate from other audit reports.

Audit outcome
Compliant

1.8 Summary of Previous Audit

Trustpower provided a copy of the last audit report undertaken by Alan Miller of Trustpower in September 2016. This report confirmed that there was no non-compliance found and no recommendations made.

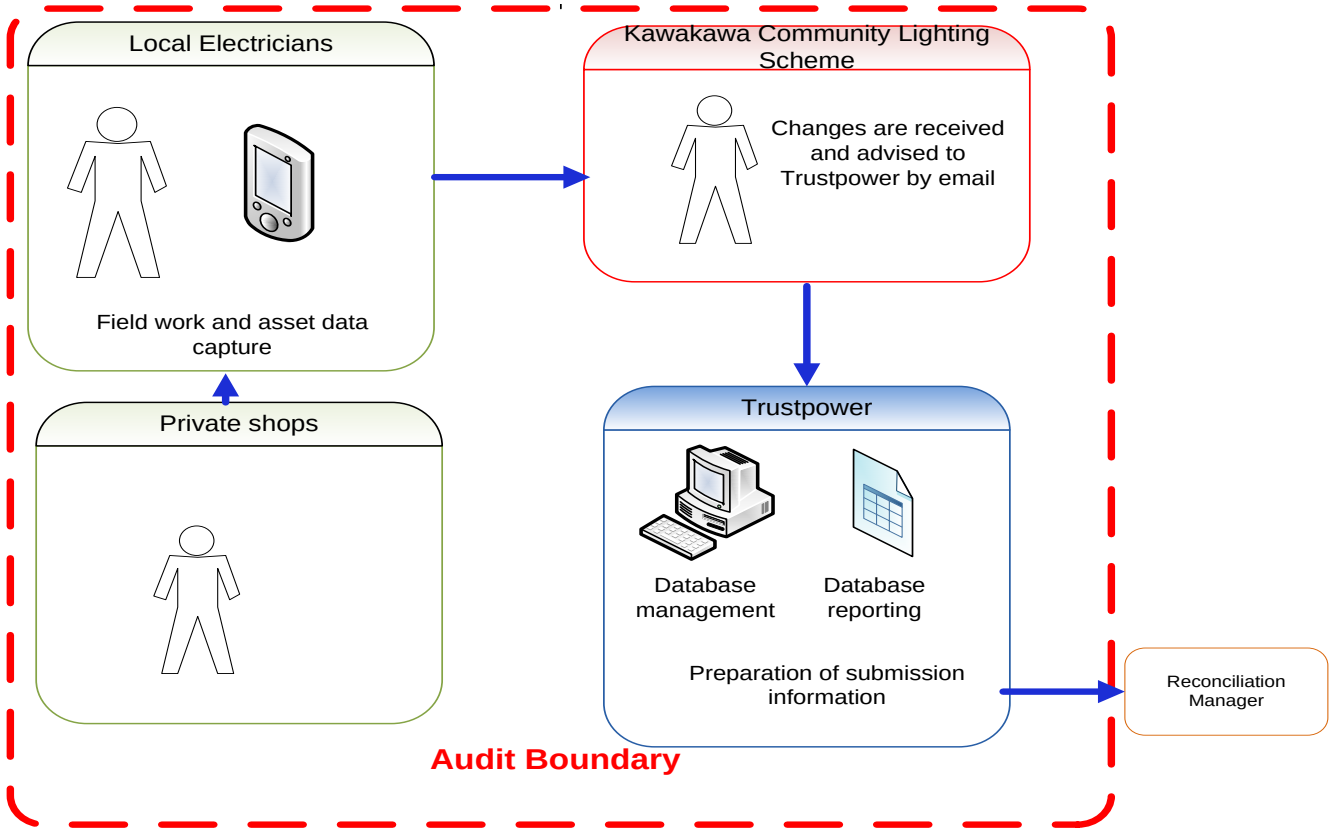
1.9 Scope of Audit

This audit of the Kawakawa Community Lighting DUML database and processes was conducted at the request of Trustpower, in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied.

The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1, which became effective on 1 June 2017.

Kawakawa Community Lighting is located on the Top Energy network. The Kawakawa Business Association arranges any required maintenance. Changes are reported to Trustpower to be recorded in the database. The database is used by Trustpower to calculate submission information.

The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information based on the monthly reporting. The diagram below shows the flow of information and the audit boundary for clarity.



The field audit of all 22 items of load was carried out on February 16th, 2018.

1.10 Data Transmission (Clause 20 of Schedule 15.2)

Submission is based on the spreadsheet data held within Trustpower, therefore there is no data transmitted by any other means. Compliance is confirmed.

2. DUML database requirements

2.1 Deriving Submission Information (Clause 11(1) of Schedule 15.3)

The retailer must ensure the:
• DUML database is up to date
• methodology for deriving submission information complies with Schedule 15.5.

Audit Observation
The process for calculation of consumption was examined and the application of profiles was checked.

Audit Commentary
Trustpower uses the STL profile. Trustpower derives the hours of operation from Top Energy. I checked the calculation for the month of January and found a 1.33% variance due to the rounding of the daily kW figure from 17.77 to 18 units. This caused an over submission of 8 kWh for the month of January. This is recorded as non-compliance below.

As detailed in **section 3.1**, the ballast being used for all 22 of the lights is incorrect by 1 watt and this is resulting in an estimated minor under submission of 111.05 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

As detailed in **sections 2.5, 2.6** and **3.1**, there were three festive lights found that are not recorded in the database. These are 6W LED decorative Christmas lights (18W total) and the period of use is not recorded in the database, therefore I am unable to calculate the impact on submission.

Audit outcome
Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: 11.1 of schedule 15.3 From: entire audit period	Rounded daily kW figure is resulting in an estimated over submission of 1.33%. All 22 items of permanent load have the incorrect ballast applied indicating under submission of 111.05 kWh per annum. Three 6 watt LED festive lights not recorded in the database and on period not tracked. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement. The audit risk rating is low as the errors are all minor in volume.

Actions taken to resolve the issue	Completion date	Remedial action status
The TRUS upload process has been changed to have as much rounding as the LoadkW field allows. These have been backdated for 14 months, and the latest revisions have been submitted based on the unrounded figures.	Resolved	Identified
The ballast will be corrected to the figures in the "Standardised Table to Streetlight Wattages" spreadsheet	Completed	
The three 6W Festive Lights are used over Dec/Jan. A reminder will sent to the customer in December and January to confirm when the lights are in use.	Resolved	
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Upload process altered to take out rounding	Resolved	
Comparison of wattage and ballast against the standardised table	Completed	
Database reminder set	Resolved	

2.2 ICP Identifier (Clause 11(2)(a) of Schedule 15.3)

The DUML database must contain:
• each ICP identifier for which the retailer is responsible for the DUML
• the items of load associated with the ICP identifier.

Audit Observation
The database was checked to confirm the correct ICP was recorded against each item of load.

Audit Commentary
The analysis found that all items of load had the correct ICP recorded against them.

Audit outcome
Compliant

2.3 Location of Each Item of Load (Clause 11(2)(b) of Schedule 15.3)

The DUML database must contain the location of each DUML item.

Audit Observation
The database was checked to confirm the location is recorded for all items of load.

Audit Commentary
The database contains Global Positioning System (GPS) coordinates for all of the 22 light fittings. Street address information and business name is recorded for all light fittings.

Audit outcome
Compliant

2.4 Description of Load Type (Clause 11(2)(c) & (d) of Schedule 15.3)

The DUML database must contain:
• a description of load type for each item of load and any assumptions regarding the capacity
• the capacity of each item in watts.

Audit Observation
The database was checked to confirm that it contained a field for lamp type and wattage capacity, and included any ballast or gear wattage.

Audit Commentary

The database contains a field for lamp type and this is populated appropriately. The database contains three fields for wattage for each address, firstly the lamp wattage, secondly the gear wattage and the third contains the total wattage. All had a value populated.

Audit outcome
Compliant

2.5 All load recorded in database (Clause 11(2A) of Schedule 15.3)

The retailer must ensure that each item of DUML for which it is responsible is recorded in this database.

Audit Observation
The field audit was undertaken of all 22 light fittings.

Audit Commentary
The field audit found that the field count matched the database for all of the 22 light fittings checked. Three festive lights were found that are not recorded in the database, these are 6 watt LED decorative Christmas lights. This is also recorded as non-compliance in **sections 2.6** and **3.1**.

Audit outcome
Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: 11(2A) of Schedule 15.3 From: entire audit period	Three 6 watt LED festive lights not recorded in the database. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement. The unrecorded festive lights will result in minimal under reporting of submission information during the period that the lights are used, therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
The three 6W Festive Lights are used over Dec/Jan. A reminder will sent to the customer in December and January to confirm when the lights are in use.	Resolved	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Database reminder set	Resolved	

2.6 Tracking of Load Changes (Clause 11(3) of Schedule 15.3)

The DUML database must track additions and removals in a manner that allows the total load (in kW) to be retrospectively derived for any given day.

Audit Observation

The process for tracking of changes in the database was examined.

Audit Commentary

The Kawakawa Business Association arranges any required maintenance with local electricians. Changes are reported to Trustpower to be recorded in the database. There were no changes reported during the audit period to the permanent lighting.

During the field audit I found three festive lights that are not recorded in the database, these are 6 watt LED decorative Christmas lights. I confirmed that these lights are connected each year during the month of December. This is also recorded as non-compliance in **sections 2.5** and **3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.6 With: Clause 11(3) of Schedule 15.3 From: Entire audit period	Tracking of load change not carried out for three 6 watt LED festive lights. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement. The volume associated with the festival lights is minor and therefore the audit risk rating of low.

Actions taken to resolve the issue	Completion date	Remedial action status
The three 6W Festive Lights are used over Dec/Jan. A reminder will sent to the customer in December and January to confirm when the lights are in use.	Resolved	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Database reminder set	Resolved	

2.7 Audit Trail (Clause 11(4) of Schedule 15.3)

The DUML database must incorporate an audit trail of all additions and changes that identify:
• the before and after values for changes
• the date and time of the change or addition
• the person who made the addition or change to the database.

Audit Observation
The database was checked for audit trails.

Audit Commentary
The database contains a complete audit trail of all changes to the database information.

Audit outcome
Compliant

3. Accuracy of DUML database

3.1 Database Accuracy (Clause 15.2 & 15.37(b))

The Audit must verify that the information recorded in the retailer's DUML database is complete and accurate.

Audit Observation
A field audit of all load items was conducted to determine the database accuracy.
Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority.

Audit Commentary
The field audit confirmed that the database was accurate in relation to the number of permanent load items.

I checked the ballasts being applied and found that each item had a small discrepancy when compared to the standardised wattage table. This is detailed in the table below:

Lamp Type	Database Total Wattage	EA Standardised Wattage	Variance	Database Quantity	Estimated Annual kWh effect on consumption
Fluorescent	71	72	1	26	111.05
Total estimated annual effect on submission					111.05

The incorrect capacities would result in an estimated under submission of 111.05 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

Three festive lights were found that are not recorded in the database, these are 6 watt LED decorative Christmas lights. This is also recorded as non-compliance in **sections 2.5** and **2.6**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: 15.2 & 15.37(b) From: entire audit period	All 22 items of permanent load have the incorrect ballast applied indicating under submission of 111.05 kWh per annum. Three 6 watt LED festive lights not recorded in the database. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement. The unrecorded festive lights will result in minimal under reporting of submission information during the period that the lights are used. The variance of 111.05 kWh, is considered minor therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
The ballast will be corrected to the figures in the "Standardised Table to Streetlight Wattages" spreadsheet	Completed	Identified
The three 6W Festive Lights are used over Dec/Jan. A reminder will sent to the customer in December and January to confirm when the lights are in use..	Resolved	
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Comparison of wattage and ballast against the standardised table	Completed	
Database reminder set	Resolved	

3.2 Volume Information Accuracy (Clause 15.2 & 15.37(c))

4. Comments are included where needed in the Participants Response.

The audit must verify that:
• volume information for the DUML is being calculated accurately
• profiles for DUML have been correctly applied.

Audit Observation
The submission was checked for accuracy for the month the database extract was supplied. This included:

- checking the registry to confirm that the ICP has the correct profile and submission flag
- checking the database extract combined with the burn hours against the submitted figure to confirm accuracy.

Audit Commentary
Trustpower uses the STL profile. Trustpower derives the hours of operation from Top Energy. I checked the calculation for the month of January and found a 1.33% variance due to the rounding of the daily kW figure from 17.77 to 18 units. This caused an over submission of 8 kWh for the month of January. This is recorded as non-compliance below.

As detailed in **section 3.1**, the ballast being used for all 22 of the lights is incorrect by 1 watt and this is resulting in an estimated minor under submission of 111.05 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

As detailed in **sections 2.5, 2.6** and **3.1**, there were three festive lights found that are not recorded in the database. These are 6W LED decorative Christmas lights (18W total) and the period of use is not recorded in the database, therefore I am unable to calculate the impact on submission.

Audit outcome
Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: 15.2 & 15.37(c) From: entire audit period	Rounded daily kW figure is resulting in an estimated over submission of 1.33%. All 22 items of permanent load have the incorrect ballast applied indicating under submission of 111.05 kWh per annum. Three 6 watt LED festive lights not recorded in the database and on period not tracked. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement. The audit risk rating is low as the errors are all minor in volume.

Actions taken to resolve the issue	Completion date	Remedial action status
The TRUS upload process has been changed to have as much rounding as the LoadkW field allows. These have been backdated for 14 months, and the latest revisions have been submitted based on the unrounded figures	Resolved	Identified
The ballast will be corrected to the figures in the "Standardised Table to Streetlight Wattages" spreadsheet	Complete	
The three 6W Festive Lights are used over Dec/Jan. A reminder will sent to the customer in December and January to confirm when the lights are in use.	Resolved	
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Upload process altered to take out rounding	Resolved	
Comparison of wattage and ballast against the standardised table	Complete	
Database reminder set	Resolved	

5. Conclusions

The audit found five non-compliances and makes no recommendations.

These relate to a small error in the calculation of the daily kW figure, a small discrepancy in the gear wattage for each of the permanent load items, and three festive lights which are not recorded in the database.

The future risk rating of eight indicates that the next audit be completed in 12 months. I have considered this result in conjunction with Trustpower's responses and my recommendation for the next audit date is 18 months.

6. Trustpower Comments

Comments are included where needed in the Participants Response.